CIRM Regenerative Medicine and Stem Cell Research Biotechnology Training Program

Grant Award Details

CIRM Regenerative Medicine and Stem Cell Research Biotechnology Training Program

Grant Type: Bridges

Grant Number: EDUC2-12638

Project Objective: This certificate granting program targets a diverse pool of advanced Bachelors post-baccalaureate, and Master's students for training in the theory and techniques of regenerative medicine, gene therapy, and stem cell biology. Students receive extensive mentoring and advising. Internships are 10 months in duration. Students are recruited from home and partnering institutions.

Investigator:

Name:	Lisa Klig
Institution:	Cal State Univ, Long Beach
Type:	PI

Award Value: $3,276,500

Status: Active

Grant Application Details

Application Title: CIRM Regenerative Medicine and Stem Cell Research Biotechnology Training Program

Public Abstract: The proposed program will train exceptional and diverse students for career opportunities in the California regenerative medicine workforce, to accelerate the development of stem cell-based therapies to treat or cure patients with unmet medical needs. They will be recruited from the ~2,000 students in the Departments of Chemistry and Biological Sciences at a large comprehensive urban university, and qualified students from other institutions. This predominantly undergraduate institution, at which more than 95% of the students are Californians with more than 70% from underserved/underrepresented populations, has been designated a Hispanic Serving, and an Asian American, Native American, Pacific Islander Serving Institution. These students reflect the ethnic mosaic of the local communities, enrich the scientific enterprise with their unique perspectives, and educate their communities by sharing the knowledge and experience they gain in this training program.

Students in the program will enroll in the two-year stem cell track of the post-baccalaureate Biotechnology Certificate Program. The stem cell track was established in 2009 and continues to be enhanced. The first year consists of courses and research experience at this university. Required coursework includes biotechnology, bioinformatics, stem cell biology, drug development and the regulatory pathway, and bioethics. In the second year, ten interns will perform full-time research in one of over thirty stem cell laboratories at Cedars-Sinai, City of Hope, and UC Irvine. Extensive mentoring, advising, and workshops throughout and after the program ensure successful academic and career placement for current participants and alumni. This program has a history of successfully training students for graduate study and for the California workforce.

The stem cell interns will also engage in activities designed to engender in them an understanding and appreciation of the perspectives and experiences of patients with unmet medical needs and the urgency of accelerating the development of stem cell therapies. Some of these activities include interacting with patients at Children's Hospital Orange County and with diabetic patients and their families at other sites. Interns will also participate in community outreach and education activities: they will educate a diverse academic population by presenting at a University symposium; they will present for current and future high school and middle school teachers; and they will have direct contact with community leaders and the general public by participating in panel presentations for a leadership program and local community colleges (for both pre-health professionals and adult education classes). These activities could initiate a life-long appreciation of regenerative medicine stem cell technologies. This may have a significant impact on our society given the role of the voting population in funding and promoting advanced technologies.

Statement of Benefit to California:

The goals of the proposed program are to train students, representing the diversity of California, to enter the stem cell research workforce and to accelerate the development of stem-cell based therapies to treat or cure patients. Both the State of California and its citizens will greatly benefit from this program. At this large, urban, State University, more than 95% of the students are California residents, and reflect the ethnic mosaic of the local communities. Students participating in this program will enrich the scientific enterprise with their unique perspectives, and can also educate their communities by sharing the knowledge and experience they gain in this training program.

The California workforce will benefit from these diverse students being prepared to pursue careers in stem cell research, therapy, and regenerative medicine. During the two-year stem cell track of the post-baccalaureate Biotechnology Certificate Program, students receive specialized training and complete coursework including biotechnology, bioinformatics, stem cell biology, drug development and the regulatory pathway, and bioethics. Ten interns per year will then perform ten-month full-time research internships in stem cell laboratories at Cedars-Sinai, City of Hope, and UC Irvine. They will also participate in patient engagement activities to increase their awareness of the challenges patients face in daily life. The interns will engage in community outreach activities, with leadership groups and community colleges, to inform the public about the advances of stem cell research and regenerative medicine. These activities may have a significant impact on the State of California given the role of the voting population in the funding and promotion of advanced technologies.

Students receive extensive mentoring throughout the program, including workshops in writing and submitting applications, in interviewing skills, and in scientific career advancement. These skills are critical for our students, many of whom are first in their families to attend University, first-generation US citizens, and/or members of groups underrepresented in science and medicine. Alumni of the program will continue to receive support as they advance their careers in stem cell research and regenerative medicine in the State of California.

The State of California benefits by having a diverse and highly skilled workforce. This will facilitate the establishment of stem cell companies that translate this technology into the regenerative medicine market and contribute to the tax base. This will also lead to the development of novel therapies for patients with unmet medical needs. Ultimately, recruiting and retaining new scientists in the California workforce will help foster the growth of the high-tech biomedical sector of the California economy.

This University has a long history of successfully training large numbers of diverse students for graduate study and for the California workforce.
